Parth Sharma

9971361784 | parthshr370@gmail.com | LinkedIn | Twitter | Github

Summary

Highly motivated Agentic AI Engineer specializing in multi-agent system orchestration and LLM fine-tuning. Proficient in **LangChain**, **LangGraph**, and **CAMEL-AI**, with a focus on developing scalable AI solutions and automating complex workflows. Passionate about leveraging large language models for intelligent automation and contributing to the open-source AI community.

Experience

AI Engineer Intern Feb 2025 – Apr 2025
ESDS Limited *Nashik, India*

- Developed a multi-agent HR system using **LangChain** for OCR-based resume extraction, intelligent semantic matching, and dynamic interview question generation, streamlining the recruitment process.
- Architected EnTAL, an end-to-end recruitment automation system automating job description generation, LinkedIn posting, ATS candidate shortlisting, OA test creation/distribution, submission evaluation, and personalized interview question creation.
- Orchestrated real-time workflows, dynamic routing, and modular agent integration using **LangGraph**, resulting in a 35% reduction in candidate processing time.
- Ensured scalability and security by containerizing microservices with **Docker**, implementing secure API endpoints, encryption, and rate limiting.
- Implemented feedback loops to refine interview questions based on historical candidate data, enhancing matching accuracy by 27%.
- Technologies Used: **LangChain**, **LangGraph**, MongoDB, Docker, Python, RESTful APIs
- **Key Achievements**:
- Reduced candidate processing time by 35% using **LangGraph** for workflow orchestration.
- Improved candidate matching accuracy by 27% by implementing feedback loops for interview question refinement.

Research Intern May 2024 – Jul 2024
Indian Institute of Information Technology Allahabad *Allahabad, India*

- Developed a novel fusion model integrating **LSTM** and **CNN** to enhance process prediction, achieving a 40% reduction in training time while maintaining accuracy.
- Significantly increased prediction accuracy and reduced training time compared to standard process modeling approaches using the developed fusion model.
- Fine-tuned LLMs for process modeling using **POWL** and **PM4PY** frameworks, optimizing performance for specific process-related tasks.
- Improved the PromoAI Framework for process modeling on large-scale databases, enhancing anomaly detection accuracy by 22%.
- Technologies Used: **PyTorch**, **Langchain**, **PM4PY**, Pandas, **POWL**
- **Key Achievements**:
- Reduced training time by 40% with the **LSTM-CNN** fusion model.
- Increased anomaly detection accuracy by 22% in the PromoAI Framework.

Projects

EnTAL AI Hiring Platform | *ESDS Limited*

- Developed a distributed multi-agent HR system for automated resume extraction, semantic candidate matching, and dynamic interview question generation.
- Architected a multi-agent system where each agent is a self-contained **LangChain** chain, responsible for specialized tasks within the HR workflow.
- Implemented a candidate matching agent combining semantic embeddings, rule-based keyword extraction, and configurable weighted scoring to ensure high-accuracy candidate ranking.
- Utilized **LangGraph** to orchestrate agent workflows, enabling real-time visualization, dynamic routing, and on-the-fly adjustments between independent modules, improving overall workflow efficiency.
- Integrated asynchronous communication via RESTful APIs (using **Flask**/**FastAPI**) to decouple agents, improve fault tolerance, and optimize processing efficiency.

- Established feedback loops within the interview generation agent to refine questions based on historical candidate data and performance insights, leading to more relevant and effective interview sessions.
- Containerized the solution using **Docker** for scalability and security, implementing secure API endpoints, encryption, and rate limiting to protect sensitive data.
- **Technologies**: **LangChain**, **LangGraph**, MongoDB, **Flask**/**FastAPI**, **Docker**, Python, RESTful APIs, OCR
- **Impact**:
- Streamlined the HR recruitment process by automating key tasks.
- Enhanced the personalization and relevance of interview sessions.

MCP-Servers | *Open Source Contribution*

- Developed custom Message Control Protocol (MCP) servers for enabling AI agents to interact with external systems in the **CAMEL-AI** framework.
- Designed and implemented filesystem, SQL database, and Google Forms interface servers with comprehensive APIs for agent interaction.
- Implemented robust error handling, authentication flows, and interactive testing utilities to ensure server reliability and security.
- Developed extensive testing suites with **pytest** to validate server functionality and ensure adherence to coding standards.
- Designed reusable server patterns and components to accelerate the integration of new functionalities within the **CAMEL-AI** ecosystem.
- Contributed to the **CAMEL-AI** open-source project, enhancing its capabilities for agent-environment interaction.

- **Technologies**: Python, **CAMEL-AI**, FastMCP, SQLite, Google API, **Pytest**, RESTful APIs
- **Impact**:
- Expanded the capabilities of the **CAMEL-AI** framework.
- Provided reusable server components for future agent integrations.

In-Run Data Shapley | *Research Project*

- Developed a method to compute a Shapley-like contribution score for each training sample during model training to identify influential data points.
- Implemented combined training and validation gradient computation within a single forward pass to assess the influence of each training sample on validation loss.
- Utilized first-order approximations through per-sample gradient dot-products to measure the impact of training samples on validation example's loss.
- Conducted multiple backward passes to demonstrate a naive implementation and discussed potential optimizations using forward/backward hooks for efficiency.
- Analyzed and visualized training data influence, facilitating data cleaning by identifying potentially mislabeled or harmful samples.
- Developed visualizations using **Matplotlib** to present the contribution scores and highlight key data points.
- **Technologies**: **PyTorch**, Librosa, NumPy, **Matplotlib**, Python
- **Impact**:
- Enabled identification of influential data points during model training.
- Facilitated data cleaning by pinpointing potentially mislabeled or harmful samples.

Events as Pixels | *Supervisor: O.P. Vyas, IIITA*

- Developed a deep learning model (Fusion Model Architecture - FMA) for predictive process monitoring by combining **LSTM** and **CNN** to capture temporal and spatial patterns.
- Designed and implemented a Fusion Model Architecture (FMA) combining **LSTM** and **CNN** to capture both temporal and spatial patterns in event logs.
- Visualized traces of event logs as 2D matrices to identify unique spatial patterns missed by traditional temporal methods, enhancing pattern recognition.
- Achieved superior accuracy in predicting the next event and minimal error in timestamp prediction compared to conventional process monitoring techniques.
- Utilized **PM4PY** for process mining and event log analysis, providing a robust foundation for the deep learning model.
- Experimented with different **CNN** and **LSTM** configurations to optimize the FMA for specific process monitoring tasks.
- **Technologies**: **PM4PY**, **Keras**, **TensorFlow**, Pandas, Python, **LSTM**, **CNN**
- **Impact**:
- Improved accuracy in predicting the next event in process logs.
- Reduced error in timestamp prediction.

Education

Manipal University Jaipur — Jaipur
Bachelor of Technology in Data Science — *Sep 2022 – Present*

Blue Bells Public School — Gurugram
CBSE — *Apr 2007 – May 2022*

Technical Skills

LLM & AI Frameworks: **LangChain**, **LangGraph**, **CAMEL-AI**, RAG, Hugging Face Transformers
Deep Learning: **PyTorch**, **TensorFlow**, **Keras**, **LSTM**, **CNN**
Data Processing & Analysis: Pandas, NumPy, **Matplotlib**, **PM4PY**, Librosa, Signal Processing, Vector Databases
Languages: Python, Java, SQL, HTML/CSS, C
Developer Tools & Infrastructure: Git, **Docker**, Linux, **LaTeX**, GitHub, **FastAPI**, **Flask**, RESTful APIs
AI/ML Techniques: Multi-agent Systems, MCP, Fine-tuning, Prompt Engineering, Semantic Embeddings, Process Mining, Anomaly Detection
Mathematics & Statistics: Stochastic Modeling, Linear Algebra, Calculus, Advanced Statistics, Optimization
Research & Documentation: Research Methodology, Technical Writing, Project Documentation, Blogging